IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF	)
	) Exaqminer: Stephen G. Sherman
Paul Matthijs	)
	) Art Unit: 2629
SERIAL NO.: 10/719,881	)
	)
FILED: November 21, 2003	) Customer No. 23644
	)
FOR: Method And Device For Avoiding Image Misinterpretation Due to Defective Pixels In A Matrix Display	)

BRIEF ON APPEAL

Honorable Director of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal is from the Examiner's final Office Action of September 30, 2009. An appropriate Notice of Appeal was filed with the Patent and Trademark Office on November 19, 2009.

The brief fee of $540.00 pursuant to 37 C.F.R. § 41.20(b)(2) is submitted herewith. Any additional fee or any credit should be applied to Deposit Account No. 12-0913.

(i) Real Party in Interest

This application is assigned to Barco N.V., who is the real party in interest. The assignment has been recorded with the Patent and Trademark Office.

(ii) Related Appeals and Interferences

The applicant is aware of no other prior and pending appeal, interference or judicial proceeding which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the present appeal.

(iii) Status of Claims

This application was filed with claims 1-15 and during prosecution claims 16-32 were added. Claims 1-15 were cancelled and claims 16, 23, 25, 31 and 32 amended.

Claims 16-32 are currently rejected.

It is the rejection of claims 16-32 that is appealed, and the appealed claims are set forth in the Claims Appendix.

(iv) Status of Amendments

No amendment or response was filed after the final action.

(v) Summary of Claimed Subject Matter

There are five independent claims in the application, claims 16,23, 25, 31 and 32.

A. Claim 16 – Independent

The subject matter of claim 16 is directed to a method for avoiding misinterpretation of an image displayed on a matrix display. The misinterpretation is due to defective cells (Fig. 1, pixels 3a and 3b) in the matrix display itself. According to the method, information on the presence and the location of the defective cells in matrix display is obtained (the description page 9, lines 5-7 and e.g. Fig. 3). On the basis of this information, the operation of matrix display device is modulated when the image is displayed (page 17, lines 8-12) by adapting the image content of the pixels of this image corresponding to the defective cells or corresponding to the pixels in the neighborhood of the defective cells (page 17, lines 16-23) . On the actual display of the image, the presence of defective cells is emphasized or warned.

B. Claim 23- Independent.

Independent claim 23 is directed to method for avoiding misinterpretation of a copy of the image displayed on a matrix display having defective cells (see the description from page 17, line 28 to page 18, line 3). The copy of the image comprises a plurality of

pixels. According to the method, information is obtained on the presence and the location of the defective cells in the matrix display. In the copy of the image, the image content of the pixels corresponding to the defective cells or of the pixels corresponding to the cells in the neighborhood of said defective cells is adapted on the basis of the obtained information. In this way, the presence of pixels corresponding to defective cells is emphasized or warned and a misinterpretation of the copy of the displayed image is avoided.

C. Claim 25- Independent

Independent apparatus claim 25 contains essentially similar features to the features in independent method claim 16. As a result, the summary of the claimed subject matter of independent claim 25 is the same as the subject matter of claim 16 above, and reference is made to the paragraph A for the explanation of claim 25, as well.

D. Claim 31-Independent.

Independent apparatus claim 31 contains essentially similar features to the features in independent method claim 23. As a result, the summary of the claimed subject matter of independent claim 31 is the same as the subject matter of claim 23 above, and reference is made to the paragraph B for the explanation of claim 31, as well.

E. Claim 32-Independent.

Independent claim 32 is directed to a control unit to be used with an apparatus for avoiding misinterpretation of an image displayed on a matrix display described in claim 25 or, alternatively, to be used in the case of a copy of an image as described in claim 31. As a result, the summary of the claimed subject matter of independent claim 32 can be considered as a control unit for the OR-combination of an apparatus of claim 25 (by reference described in paragraph A) and an apparatus of claim 31 (by reference described in paragraph B). As a result, the summary of the claimed subject matter of independent claim 32 is the same as the OR-combined subject matter of claims 25 and 31 above, and reference is made to the paragraphs A and B for the explanation of claim 32, as well.

(vi) Grounds of Rejection to be reviewed on Appeal

There are two grounds of rejection of the claims of this application:

A. Ground 1 (Claims 16-19, 22-28 and 31-32)

Claims 16-19, 22-28 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aida (JP 59-126967) in view of Ohara et al. (US 6,529,618).

B. Ground 2 (Claims 20-21 and 29-30)

Claims 20-21 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aida (JP 59-126967) in view of Ohara et al. (US 6,529,618) and further in view of Johnson et al. (US 2004/0164939).

(vii) Argument

A. Ground 1 (Claims 16-19, 22-28 and 31-32).

The Examiner has erroneously rejected claims 16-19, 22-28 and 31-32 under 35 U.S.C. 103(a) as being unpatentable over Aida (JP 59-126967) in view of Ohara et al. (US 6,529,618). It may be important to note that in the case of Aida, which is a document in the Japanese language, use has been made during the procedure of the English translation by FLS, Inc., furnished by the USPTO, and that references to Aida are to this English translation.

Independent claim 16 of the present invention, which is also representative of independent claim 25, reads as follows:

> 25. Method for avoiding misinterpretation of an image displayed on a matrix display device due to defective cells in the matrix display device, whereby the image comprises a plurality of pixels, the method comprising:
> obtaining information on the presence and the location of the defective cells in said matrix display device, and
> on the basis of this information,
> modulating the operation of said matrix display device when displaying said image on said matrix display device and adapting in this way the image content of the pixels of said image, corresponding to said defective cells or corresponding to the pixels in the neighborhood of said defective cells so as to emphasize or warn for the presence of said defective cells on the actual display of said image.

With regard to claims 16 and 25, the Examiner states:

***"Regarding claim** 16, Aida discloses a method comprising:*

obtaining information on the presence and the location of defective pixels in the display (Figure 3 and page 5, lines 19-22 explain that measurements are taken of the pixels, and page 5, lines 22 to page 6, line 5 explain that the measurements are compared to determine if there is a defect or not and then the results are stored in a storage section 4. The storage section also receives the coordinate information from the x-sequence control 8 and the y-sequence control 9, i.e. location of the pixel.), and on the basis of this information, emphasize or warn for the presence of pixels corresponding to said defective cells (Figure 3 shows display section 14. Page 7, lines 3-5 explain that the judgment results are displayed on the display section 14 at the position that corresponds to the pixel measured at that time. Thus an image of the LED matrix is made on the monitor at the location of the defective pixels wilt be made so as to warn and indicate these defects to a user.)".

This statement is confusing. Applicant agrees that Aida discloses a method for obtaining information on the presence and the location of defective pixels in **a** display, not in "the" display. Indeed, there are two displays in the Aida device: a first display, referenced D, U, T in Figures 2 and 3, constituting a matrix display which is tested, and a display section 14 which is the display on which the results of the test are displayed (Aida page 7, lines 3-5). There is, however, no disclosure of a particular emphasizing or warning for the presence of defective cells because display section 14 is displaying the judgment results f, which results correspond to the output of a comparison section 3, which output represents the acceptance or rejection of a measurement (Aida, from page 6, last line to page 7, line 5).

As a first conclusion it is clear that Aida discloses only the feature "obtaining information on the presence and the location of the defective cells in said matrix display device" of claim 16.

Still with respect to claims 16 and 25, the Examiner continues:

> *"Aida fail to teach that the method is for avoiding misinterpretation of an image displayed on a matrix display due to defective cells in the matrix display, where on the basis of the information, modulating the operation of said matrix display when displaying said image on said matrix display device and adapting in this way the image content of the pixels of said image, corresponding to said defective cells or corresponding to pixels*

in the neighborhood of said defective cells so as to emphasize or warn for the presence of said defective cells on the actual display of said image."

This statement confirms implicitly the first conclusion above, because only the feature "obtaining information...matrix display device" is not referred to as "fail to teach".

Regarding claims 16 and 25, the Examiner continues:
"Ohara et al. disclose a method for avoiding misinterpretation of an image displayed on a display due to defects, whereby the image comprises a plurality of pixels, the method comprising:
obtaining information on the presence and the location of the defects (Column 17, lines 33-40 and 57-64 explain that the location of the defects are obtained), and on the basis of this information, modulating the operation of said display when displaying said image on said display and adapting in this way the image content of the pixels of said image, corresponding to said defects or corresponding pixels in the neighborhood of said defects so as to emphasize or warn for the presence of said defects on the actual display of said image (Figure 13 and 14 and column 19, lines 12-19 explain that the matrix display operation is changed to mark the display, i.e. emphasize/warn, for the presence of the defects.)."

Applicant disagrees. The apparatus disclosed in Ohara et al. relates to a radiation image processing apparatus. An image sensing panel (11) converts irradiated radiation into electric image signals ("first image data"). The image sensing panel (11) is part of a radiation image reading apparatus (fig. 10, element 30). A defect detecting device detects defects in the image signals and produces defect information indicating a position of the image defect i.e. a defect in the image sensing panel. An object (5) is then irradiated and the image signals ("second image signals"), outputted by the image sensing panel and corresponding to the radiation passing through the object, are corrected on the basis of the defect information (see Abstract). The image signals are displayed on an image display device (fig. 12, item 56). According to figures 13 and 14, five different displays may be displayed on the screen of the image display device:

1. According to fig. 13, the position of the image defects is displayed whereby the position of newly detected image defects are marked (col. 19, lines 12-19);
2. According to the left-hand part of fig. 14(A), the image data are displayed before correction (col. 20, lines 58-67);
3. According to the right-hand part of fig. 14(A), the image data are displayed after correction (col. 20, lines 58-67); the displays of 2 and 3 may be displayed at the same time, one next to the other or they may be displayed one after the other (col. 20, line 67 to col. 21, line 2);
4. According to the left-hand part of fig. 14(B), only the position of the image defects are displayed;
5. According to the right-hand part of fig. 14(B), the image data are displayed after correction (col. 21, lines 3-16).

A display device in which the image content of the pixels of an image is adapted in order to emphasize or to warn for the presence of defective cells is thus not disclosed by Ohara et al. As a consequence, there cannot be a disclosure in Ohara of a display device having such an adaptation of the pixels of an image **whereby the defective cells belong to the display device, displaying this image** (the corresponding feature of claim 16).

In the final Office Action, the Examiner refers at page 5 to the factual inquiries set forth in *Graham* v. *John Deere Co.,* 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a); however inquiry 2 ("Ascertaining the differences between the prior art and the claims at issue") is not performed at all in the final Office Action with regard to Ohara et al. . These differences between Ohara et al. and claim 16 are:

1. In claim 16, the misinterpretation of the image is due to defective cells of the display device on which the image is displayed while in Ohara, a possible misinterpretation is due to defective cells in the image sensing device;

2. In claim 16, presence and location of defective cells of the display are obtained while in Ohara presence and location of defective cells in another item, the image sensing device, are obtained;

3. In claim 16, the image content of the pixels of the image are adapted in order to emphasize or

to warn for defective cells while in Ohara there is no such adaptation, but a correction of such pixels.

These differences are essential and they all relate to the display device on which an image is displayed. Taking into account that the first Graham inquiry was not performed correctly (see above) and that the second inquiry was not performed at all, it is clear that the conclusion of obviousness cannot be correct. That conclusion in the final Office Action is as follows (page 7, first paragraph):
"Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the image misinterpretation method taught by Ohara et al. on a matrix display panel having defective pixels as taught by Aida in order to allow for medical doctors to read the photograph grasping the positions of the defective cells such that the misinterpretation of the medical image can be avoided (Ohara et al., column 21, lines 21-26)."

Only to be complete: in claim 16, the positions of the defective cells (of the display device) are represented in the displayed image (by adapting the image signals) while in Ohara, the position of the defective pixels (of another item: image sensing panel) are displayed in a particular display, without any processing of the image signals.

Thus, regarding claim 16, only the feature: "obtaining information on the presence and the location of the defective cells in said matrix display device" is taught in the prior art. Claim 16 is thus novel and non-obvious in view of the prior art. Similar arguments and conclusions apply to claim 25.

Independent claim 23, which is also representative of independent claim 31, reads as follows:

> 23. Method for avoiding misinterpretation of a copy of an image displayed on a matrix display device due to defective cells in the matrix display device, whereby the copy of the image comprises a plurality of pixels, the method comprising:
> obtaining information on the presence and the location of the defective cells in said matrix display device, and

on the basis of this information,

adapting in said copy of said image, the image content of the pixels corresponding to said defective cells or of the pixels corresponding to the cells in the neighborhood of said defective cells so as to emphasize or warn for the presence of pixels corresponding to said defective cells, thereby avoiding misinterpretation of the copy of said image displayed on the matrix display device due to said defective cells.

In rejecting claim 23, the Examiner states:

***"Regarding claim** 23, please refer to the rejection of claim 16, and furthermore Ohara et al. also disclose of a method for avoiding misinterpretation of a copy of an image displayed on a display device due to defects, whereby the copy of the image comprises a plurality of pixels (Figure 13, 14A and 148) comprising adapting in said copy of said image, the image content of the pixels corresponding to said defects so as to emphasize or warn for the presence of pixels corresponding to said defects (Figure 13, 14A and 148 all show the copy of the image taken that is displayed on the display device with the defects emphasized/warned for by using visual marking so as to avoid misinterpretation of the copy of the image taken.)."*

According to this interpretation, figures 13, 14A and 14B can be considered to be copies of an image displayed on an image display device. Applicant disagrees. The drawings referred to are simply "representations", as seen by a draftsman (or by the inventor), of the images, displayed on different screens but no copies of a real screen image. Further, as explained above, Ohara does not disclose an image on a matrix display device whereby the display device itself has defective cells and Ohara thus also cannot disclose a copy of such image.

In the final Office Action, the Examiner further states in relation to claim 23:

"Furthermore, as also discussed in the rejection of claim 16, Aida also discloses of adapting the image content of the defective cells or of cells in the neighborhood of the defective cells so as to emphasize or warn for the presence in the copy of said image of pixels corresponding to said defective cells (Figure 3 shows display section 14. Page 7, lines 3-5 explain that the judgment results are displayed on the display section 14 at the position that corresponds to the pixel measured at that time. This means that in a copy of an image of the LED matrix

display the location of the defective pixels will be made so as to warn the user about the defects.). "

According to this argument, the information displayed on the display section (in Aida, fig. 3, element 14) is considered to be the copy of an image displayed on the LED matrix display (fig. 3, element DUT). In Aida the judgment results (i.e. the results representing the acceptance/rejection of the measurement on the LED matrix display-see from page 5, the last but one line to page 6, line 5) are determined and these results are stored in a storage section 4 at a corresponding position. These judgment results are then displayed in display section 4 and there is no provision in the disclosure of Aida to send any image data, whatever it may be, from the LED matrix display to the display section. Moreover, there is no suggestion in Aida of an image displayed on the LED matrix display and it is thus impossible to have a copy of a non-existing image on the display section. Following the same reasoning, there can also not be an adapting of the image content of some pixels.

Claim 23 is thus novel and non-obvious in view of the prior art. The same arguments also apply to claim 31.

Independent claim 32 reads as follows:

> 32. A control unit for use with an apparatus for avoiding misinterpretation of an image displayed on a matrix display device, due to defective cells in the matrix display device and whereby the image comprises a plurality of pixels, the control unit being adapted for controlling the obtaining of information on the presence, the location and characteristics of the defect cells in said matrix display device, and for controlling, on the basis of this information, modulation of the operation of said matrix display device when displaying said image on said matrix display device and adapting in this way the image content of the pixels of said image, corresponding to said defective cells or corresponding to the pixels in the neighborhood of said defective cells so as to emphasize or warn for the presence of said defective cells on the actual display of said image, or,
> in a copy of said image, for adaption of the image content of the pixels corresponding to said defective cells or of the pixels corresponding to the cells in the neighborhood of said

defective cells so as to emphasize or warn for the presence in the copy of said image of pixels corresponding to said defective cells, thereby avoiding misinterpretation of the image displayed on the matrix display device, due to said defective cells.

Claim 32 is directed to a control unit to be used with an apparatus according to claim 25 (adapting the image content of the pixels on the display device) **or** with an apparatus according to claim 31 (adapting the image content of the pixels of the copy). Because claim 32 contains an alternative, meeting one of the alternatives is sufficient for rejecting the entire claim.

With regard to claim 32, the Examiner concludes:
***"Regarding claim** 32, this claim is rejected under the same rationale as claim 16.* "

As explained above, claim 16 is submitted to be novel and non-obvious. The same applies to claim 32.

The same is also true with respect to the alternative of claim 32 (adapting the image content of the pixels of the copy). This alternative includes the features of claim 23 and for the reasons detailed above in relation to claim 23, this alternative is also novel and non-obvious in view of the prior art.

In order to be complete, it seems appropriate to briefly address the Examiner's Response to Arguments (section 2 of the final Office Action). In this context, the Examiner states: *"On page 8 the applicant argues that claim 16 does not explicitly mention a representation of both the image and the indication of the image defects in a single combined image, however, that the claim reciting "an image displayed on a matrix display device ... modulating the operation of said matrix display device so as to emphasize or warn for the presence of said defective cells on the actual display of said image" means that this is done in a "single combined image." The Examiner respectfully disagrees. The Applicant is confusing their invention with the claim language and the "single combined image" limitation cannot be read into the claims without the limitation being added to the claims. As of right now, Ohara et al. disclose an image displayed (Figure 14(A) "before correction") and masking/modulating the display to show the defects (Figure 14(A)"image*

defect") on the actual display of the image (Figure 14(A)), so the reference teaches the above mentioned claim limitations."

Claim 16 says explicitly "...modulating the operation of said matrix display device when displaying said image on said matrix display device and **adapting in this way the image content of the pixels of said image**, corresponding to said defective cells or..." (emphasis added). By adapting the image content of some of the pixels, a new image is created comprising partly the original image and partly new information (the emphasizing/warning information). In other words there is a single combined image.

The Examiner goes further on page 3 of the final Office Action:
"On pages 9-12 the Applicant argues the rejection of claim 16. Specifically the Applicant is arguing that Aida discloses of finding defective pixels on a matrix display but none of the rest of the claim, and that Ohara does not display avoiding misinterpretation of an image displayed on a matrix display. While it is true that Ohara does not teach a "matrix display," Ohara is not used to teach this feature, Aida is used to teach the defective cells of the matrix display and thus in combination, Aida and Ohara disclose avoiding misinterpretation of an image displayed on a matrix display. If Ohara discloses the matrix display aspect, then Ohara would have been used alone in a 35 USC §102 rejection. Further, on pages 11 and 12 the Applicant argues that the combination would not have been obvious because in the combination a doctor would need at least two different images for grasping the position of the defective cells and deriving the information concerning the position of the defective pixels from two different images would also lead to inaccuracies regarding the determination of these positions. The Examiner respectfully disagrees. The Applicant has not adequately proved that this combination will lead to inaccuracies regarding the determination of these positions. Arguments and conclusions drawn by the Applicant cannot take the place of facts, and no factual evidence has been provided to prove that this combination is not obvious. The Examiner maintains that the idea of making marking shown in Figures 13 and 14(A) of Ohara combined with the defective cell device taught by Aida would have been obvious such that not only image defects but also display defects could be marked and realized by the doctor interpreting the image. "

As to the assertion "that Ohara does not display avoiding misinterpretation of an image displayed

on a matrix display": Ohara is not only not teaching a matrix display but, which is far more important, Ohara does not teach the avoiding misinterpretation of an image displayed on a matrix display **due to defective cells of that matrix display.**

As to the use of Ohara by a doctor compared to the use of the method/apparatus of the present invention: in Ohara, the defects are shown on a separate part of the screen, next to the image (of the examined object) while in the present invention, the defects are integrated and highlighted within the image. It is clear that such an integrated image with highlighting the position of the defective cells allows a higher precision of the localization of the defective cells relative to the details of this image.

The Examiner concludes the Response to Arguments by the following:
"On pages 12-17 the Applicant argues the remaining claims similarly as argued above for claim 16, and for the same reasons the rejection is maintained. Further, with respect to the "copy" argument made by the Applicant with respect to claim 23, Aida teaches adapting the image content in a copy of the image, where Aida disclose an all bright image since all of the LEDs are turned on to be tested, thus if the LEDs are on then there is an "image" since what is meant by "image" is not defined in the claims. An all white display is still an image. Further, Figure 14(A) of Ohara for example, shows on the left hand side an image taken by the camera with an adaptation made to signify the defective pixels, i.e. a copy of the image taken by the camera with adapted content, and since a combination of the references is used to teach the claimed limitations, then Ohara in combination with Aida will show the image on the matrix display and then the monitor will display the image with the adapted content to show the defects."

As explained above in applicant's arguments concerning claim 23, in Aida there is no transmission of signals representing the image on the LED matrix display, only judgment results are stored and displayed. Even accepting for a moment that there is a teaching of an all white display in Aida (which is not admitted), an LED may output white light but nevertheless be detected as defective (due to its ageing electrical characteristics or any other reason), with the consequence that it will be displayed as an LED with a rejection judgment on the display section 14 and the image displayed by the display section will be different from the "image" on the LED matrix display. From the bridging paragraph of pages 6 and 7 of Aida, the LED's of the LED

matrix LED display are driven in synchronism with the optical sensor drive, which is a motor controlled drive so that the LED's are driven one after the other so that there is no question of a real coherent image.

Claims 17, 18, 22, 24 and 26-28 are dependent claims, depending on any of the independent claims 16, 23 or 25, respectively. Consequently, claims 17, 18, 22, 24 and 26-28 also are submitted to be allowable at least by virtue of their dependence on allowable claims.

B. Ground 2 (Claims 20-21 and 29-30)

In the final Office Action, claims 20-21 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aida (JP 59-126967) in view of Ohara et al. (US 6,529,618) and further in view of Johnson et al. (US 2004/0164939).

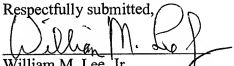
Claims 20-21 and 29-30 are claims depending from independent claim 16 and 25, respectively. Since claims 16 and 25 are submitted to be allowable, claims 12 and 25 are also submitted to be allowable as dependent claims.

CONCLUSION

The rejection of claims 16-32 are in error and the Examiner should be reversed. Such action is therefore solicited.

January 19, 2010

Respectfully submitted,



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Claims Appendix

1-15 (Cancelled)

16. Method for avoiding misinterpretation of an image displayed on a matrix display device due to defective cells in the matrix display device, whereby the image comprises a plurality of pixels, the method comprising:
obtaining information on the presence and the location of the defective cells in said matrix display device, and
on the basis of this information,
modulating the operation of said matrix display device when displaying said image on said matrix display device and adapting in this way the image content of the pixels of said image, corresponding to said defective cells or corresponding to the pixels in the neighbourhood of said defective cells so as to emphasize or warn for the presence of said defective cells on the actual display of said image.

17. Method according to claim 16, wherein the information is obtained from data previously stored in a memory device.

18. Method according to claim 17, comprising, while displaying the image on the matrix display device, supplying information on defective cells to a user, based on the stored data.

19. Method according to claim 16, wherein, emphasizing or warning for the presence of at least one defective cell comprises visually marking the at least one defective cell on said matrix display device.

20. Method according to claim 16, furthermore comprising shifting the displayed image so that defective cells are not located in a region of interest.

21. Method according to claim 16, furthermore comprising shifting the displayed image so that a defective cell is located in a flat image area.

22. Method according to claim 16, wherein the information on the presence of defective cells is obtained by means of an image capturing device.

23 . Method for avoiding misinterpretation of a copy of an image displayed on a matrix display device due to defective cells in the matrix display device, whereby the copy of the image comprises a plurality of pixels, the method comprising:
obtaining information on the presence and the location of the defective cells in said matrix display device, and
on the basis of this information,
adapting in said copy of said image, the image content of the pixels corresponding to said defective cells or of the pixels corresponding to the cells in the neighborhood of said defective cells so as to emphasize or warn for the presence of pixels corresponding to said defective cells, thereby avoiding misinterpretation of the copy of said image displayed on the matrix display device due to said defective cells.

24. Method according to claim 23, wherein, the copy is a hard copy or an electronic copy.

25. An apparatus for avoiding misinterpretation of an image displayed on a matrix display device due to defective cells in the matrix display device, whereby the image comprises a plurality of pixels, the device comprising:
an information retrieval device for obtaining information on the presence and the location of the defective cells in said matrix display device, and
a modulating device using this information
for modulating the operation of said matrix display device when displaying said image on said matrix display device and adapting in this way the image content of the pixels of said image, corresponding to said defective cells or corresponding to the pixels in the neighborhood of said defective cells so as to emphasize or warn for the presence of said defective cells on the actual display of said image,

26. An apparatus according to claim 25, wherein the information retrieval device comprises a memory device where defective cell information data is stored.

27. An apparatus according to claim 26, comprising an information supply device for supplying information on defective cells to a user, based on the stored data, while displaying the image on said matrix display device.

28. An apparatus according to claim 25, furthermore comprising marking means for visually marking the defective cells on said matrix display device.

29. An apparatus according to claim 25, furthermore, comprising a shifting device for shifting the displayed image so that defective cells are not located in a region of interest.

30. An apparatus according to claim 25, furthermore comprising a shifting device for shifting the displayed image so that a defective cell is located in a flat image area.

31. An apparatus for avoiding misinterpretation of a copy of an image displayed on a matrix display device due to defective cells in the matrix display device whereby the copy of the image comprises a plurality of pixels, the device comprising:
an information retrieval device for obtaining information on the presence and the location of the defective cells in said matrix display device and
a modulating device using this information
for adapting in said copy of said image, the image content of the pixels corresponding to said defective cells or of the pixels corresponding to the cells in the neighborhood of said defective cells so as to emphasize or warn for the presence of pixels corresponding to said defective cells, thereby avoiding misinterpretation of the image displayed on the matrix display device due to said defective cells.

32. A control unit for use with an apparatus for avoiding misinterpretation of an image displayed on a matrix display device, due to defective cells in the matrix display device and whereby the image comprises a plurality of pixels, the control unit being adapted for controlling the obtaining of information on the presence, the location and characteristics of the defect cells in said matrix display device, and for controlling, on the basis of this information, modulation of the operation of said matrix display device when displaying

said image on said matrix display device and adapting in this way the image content of the pixels of said image, corresponding to said defective cells or corresponding to the pixels in the neighborhood of said defective cells so as to emphasize or warn for the presence of said defective cells on the actual display of said image, or,
in a copy of said image, for adaption of the image content of the pixels corresponding to said defective cells or of the pixels corresponding to the cells in the neighborhood of said defective cells so as to emphasize or warn for the presence in the copy of said image of pixels corresponding to said defective cells, thereby avoiding misinterpretation of the image displayed on the matrix display device, due to said defective cells.

Evidence Appendix

None.

Related Proceedings Appendix

None.